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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,363	01/15/2004	Thomas John Ford	16437-0208U	5311
24267	7590	01/25/2006	EXAMINER	
CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210			ISSING, GREGORY C	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/758,363	Applicant(s) FORD ET AL.	
	Examiner Gregory C. Issing	Art Unit 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 8 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/6/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. Claims 9-10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/28/05. The applicant's remarks regarding the disclosed species have been considered. The claims originally noted by the Examiner to consist of Species II and IV are hereby grouped together as a single species. However, Species III is still considered to be a separate species since the method separately propagates updated current position and velocity information to separately determine GPS position and inertial position.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 7, 8, and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al (*Complete GPS/INS Integration Technique Using GPS Carrier Phase Measurements*).
4. Kim et al disclose the claimed GPS/INS receiver and method for using GPS observables in the form of double-differenced GPS carrier phase measurements in an INS error model performed using a Kalman filter. The resolution of the GPS carrier phase measurements is part of the complete GPS/INS integration scheme such that the GPS gives precise carrier phase measurements to INS and makes INS error be corrected by the Kalman filter. The INS gives current attitude information to GPS and makes GPS carrier phase integer ambiguity to be found easily. Figure 1 shows the flow diagram of the complete GPS/INS integration. It is not seen how the claimed subject matter differs from the integrated GPS/INS system of the prior art.
5. Claims 7, 8, and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Buchler et al (5,543,804).
6. Buchler et al disclose the claimed integrated GPS/INS receiver using a Kalman filter including antenna A1/A2 for receiving GPS signals, GPS receivers R1/R2 for acquiring GPS signals and

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determining double differenced phase measurements P1, inertial measurement unit I1, Kalman filter K1 that uses the inertial measurements and double differenced measurements to update position related information and a mechanization task in the form of the processors for determining the navigation information, i.e. position, velocity, and attitude information. It is not seen how the claimed subject matter differs from the integrated GPS/INS system of the prior art.

7. Claims 7, 8, and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Coatantiec et al (2004/0239560).

8. Coatantiec et al disclose an integrated GPS/INS receiver and method for determining inertial information including a GPS antenna and receiver (GPS - Fig. 1), inertial measurement unit (C_INERT - Fig. 1), and a Kalman filter utilizing the observations and measurements to provide inertial position information (see [0017], [0021] and [0022], e.g.). It is not seen how the claimed subject matter differs from the integrated GPS/INS system of the prior art.

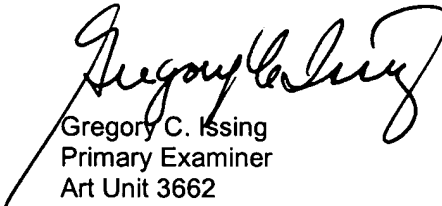
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ford et al (6,721,657) disclose an inertial GPS navigation system using time tags. Lin (6,278,945) discloses various solutions for integrated GPS/INS systems, see Figures 1-5. Groves (WO 01/94971) discloses an adaptive GPS and INS integration system including a GPS subsystem 1, an inertial measurement unit 5, and a Kalman filter 3 wherein the Kalman filter is responsive to the INS measurements 6 of position, velocity and attitude and GPS measurements and broadcast navigation data 2/4 and adaptively sends corrections back to the INS 5.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (571)-272-6973. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gregory C. Issing
Primary Examiner
Art Unit 3662

gci